

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (canceled)

2. (canceled)

3. (canceled)

4. (currently amended) A method for detecting a plurality of defects in an item under inspection comprising:

acquiring at least one image of said item;

providing a plurality of neural networks, at least one of said plurality of neural networks corresponding to each one of said plurality of defects to be detected, wherein said plurality of defect is selected from a group comprising deposits, cross-sectional reductions, misalignments, infiltration, and cracks;

processing said at least one image to produce a processed image having objects isolated from an image background of said image; and

inputting said processed image into said plurality of neural networks to obtain information concerning corresponding defects.

5. (previously presented) A method as claimed in claim 4, further comprising issuing a report using said information concerning said defects.

6. (previously presented) A method as claimed in claim 4, wherein said plurality of neural networks further comprises sets of neural networks used for counter-checking results, each one of said sets of similar neural networks corresponding to each one of said plurality of defects to be detected.

7. (previously presented) A method as claimed in claim 4, wherein processing said at least one image further comprises processing said at least one image according to a selected set of image analysis techniques, said set of image analysis techniques selected as a function of said defects to be detected.

8. (previously presented) A method as claimed in claim 7, wherein n sets of neural networks are used to detect n types of defects.

9. (previously presented) A method as claimed in claim 8, wherein:
said item under inspection is a sewer pipe;
n corresponds to 5; and
said plurality of defects are deposits, cross-sectional reductions, misalignments, infiltration, and cracks.

10. (previously presented) A method as claimed in claim 9, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

11. (previously presented) A method as claimed in claim 10, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

12. (previously presented) A method as claimed in claim 10, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

13. (previously presented) A method as claimed in claim 10, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding, and analysis.

14. (previously presented) A method as claimed in claim 4, wherein said neural networks are back-propagation neural networks.

15. (previously presented) A method as claimed in claim 4, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

16. (previously presented) A method as claimed in claim 13, wherein said videotape is digitized.

17. (previously presented) A method as claimed in claim 6, wherein each set of neural networks comprises at least three neural networks used for counter-checking results.

18. (previously presented) A method as claimed in claim 4, further comprising determining a position of said objects in said item under inspection.

19. (previously presented) A method as claimed in claim 5, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

20. (previously presented) A method as claimed in claim 19, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

21. (previously presented) A method as claimed in claim 19, wherein a plurality of rehabilitation techniques are recommended.

22. (previously presented) A method as claimed in claim 21, further comprising ranking said plurality of recommended rehabilitation techniques.

23. (currently amended) A method for detecting a selected defect in an item under inspection comprising:

acquiring an image of said item;

providing a neural network for detecting said selected defect, wherein said selected defect is selected from a group comprising deposits, cross-sectional reductions, misalignments, infiltration, and cracks;

selecting a set of image analysis techniques as a function of said selected defect;

processing said image according to said selected set of image analysis techniques for said selected defect to produce a processed image having objects isolated from an image background of said image;

inputting said processed image to said neural network to obtain information corresponding to said selected defect.

24. (previously presented) A method as claimed in claim 23, further comprising issuing a report based on outputs produced by said neural network.

25. (previously presented) A method as claimed in claim 23, wherein said providing a neural network further comprises providing a set of neural networks, said set of neural networks being used for counter-checking results.

26. (previously presented) A method as claimed in claim 25, wherein said set of neural networks comprises three neural networks.

27. (canceled)

28. (currently amended) A method as claimed in claim ~~23~~27, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

29. (previously presented) A method as claimed in claim 28, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

30. (previously presented) A method as claimed in claim 28, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

31. (previously presented) A method as claimed in claim 28, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding , and analysis.

32. (previously presented) A method as claimed in claim 23, wherein said neural network is a back-propagation neural network.

33. (previously presented) A method as claimed in claim 23, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

34. (previously presented) A method as claimed in claim 33, wherein said videotape is digitized.

35. (previously presented) A method as claimed in claim 23, further comprising determining a position of said objects in said item under inspection.

36. (previously presented) A method as claimed in claim 24, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

37. (previously presented) A method as claimed in claim 36, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

38. (previously presented) A method as claimed in claim 36, wherein a plurality of rehabilitation techniques are recommended.

39. (previously presented) A method as claimed in claim 38, further comprising ranking said plurality of recommended rehabilitation techniques.